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published in
Journal of Biomechanics
2017

DOI (link to publisher)
10.1016/j.jbiomech.2017.07.036

document version
Publisher's PDF, also known as Version of record

Journal of Biomechanics 63 (2017) 206–209

Contents lists available at ScienceDirect

Journal of Biomechanics

journal homepage: www.elsevier.com/locate/jbiomech
www.JBiomech.com

Corrigendum

Corrigendum to "The effect of the stability threshold on time to stabilization and its reliability following a single leg drop jump landing" [J. Biomech. 49(3) (2016) 496–501]

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1. Introduction

In our paper, entitled "The effect of the stability threshold on time to stabilization and its reliability following a single leg drop jump landing" (Fransz et al., 2016), we provided insight in how threshold selection affects time to stabilization (TTS) and its reliability. A very low threshold yields a certain percentage of unusable trials, since there is no intersection of the processed signal with the threshold; apparent at the left in Figs. 3–6 in the original paper. With very high thresholds, similarly, there is no intersection between signal and threshold. However, due to incorrect coding of these trials, this was not represented in the figures and this error propagated to calculation of intra-class correlation coefficients (ICCs).

2. Methods

2.6. Statistical analysis (Replacement of 3rd sentence)

When one or more trials did not reveal a TTS value, the participant was discarded and the ICC was calculated for the remaining participants.

3. Results (Adjustment of 2nd and 3rd paragraphs)

Figs. 3–6 show how thresholds affect the mean TTS, the fraction of unusable trials, and the corresponding ICC values. The end of the horizontal axis was set at SD at which the TTS equalled the mean time to body weight (0.30 ± 0.05 s), which varied across directions and methods from 11 SD (Fig. 6c) to 84 SD (Fig. 5b).

Overall, the V direction yielded the highest ICC values, and the ML direction returned the highest fraction of unusable trials. The patterns of TTS values and resultant ICC values were essentially similar for RAW and RMS, with ICC values being mostly 'insufficient' to 'fair' for the entire range of thresholds (Figs. 3 and 4). The SA signals resulted in the most stable ICC values across the threshold levels, being 'substantial' for V, and 'moderate' for AP, and 'fair' for ML (Fig. 5). The ICC values for TOP were 'moderate' for V and AP, and mostly 'insufficient' for ML (Fig. 6).

4. Discussion (Adjustments of 1st paragraph; the 1st two sentences of 3rd paragraph; the 1st sentence of the 5th paragraph; and the last sentence of 7th paragraph)

The main finding of the current study is that TTS is highly dependent on the threshold used. None of the processed signal/threshold combinations yielded a narrow band of threshold values with optimum reliability.

In contrast, the SA and TOP methods yielded sufficiently reliable TTS values for V and AP directions, provided that thresholds were within an appropriate range. The threshold should be between 10 and 20 SD for VSA and APSA, and around 10 SD for VTOP and APTOP.

As the ICC values increased when the TTS approximated mean TTBW for the VRAW and RMS (in all three directions), it might be worthwhile to further examine this particular phase following a single leg drop jump landing.

DOI of original article: http://dx.doi.org/10.1016/j.jbiomech.2015.12.048
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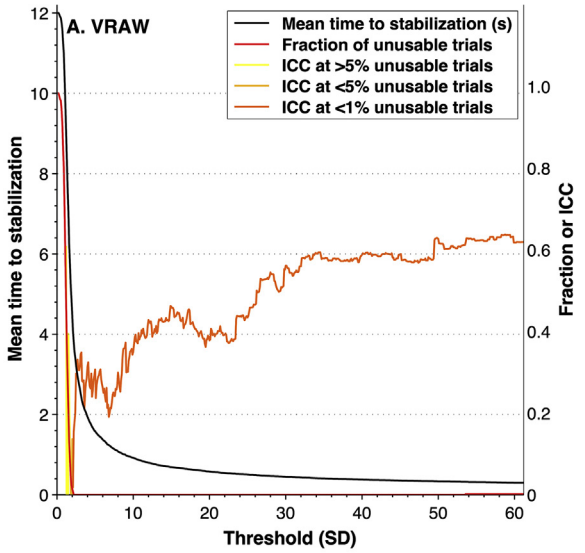
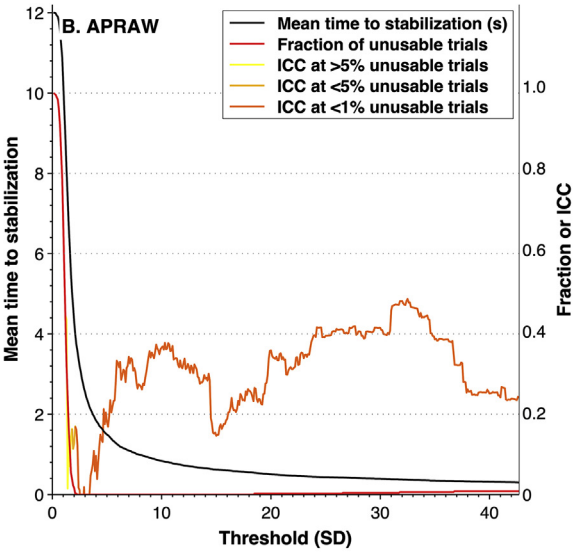
http://dx.doi.org/10.1016/j.jbiomech.2017.07.036





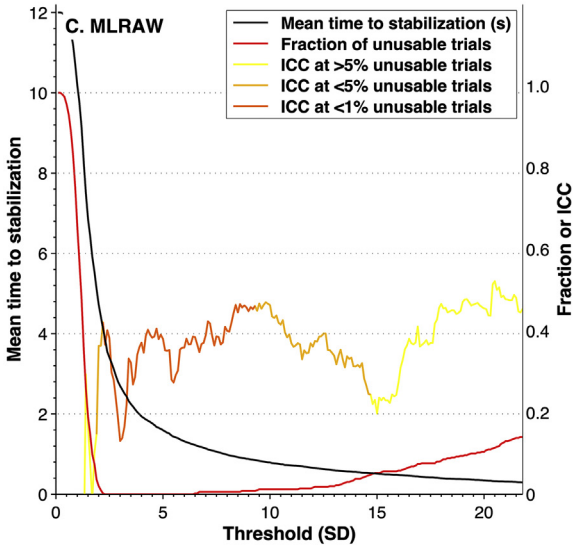
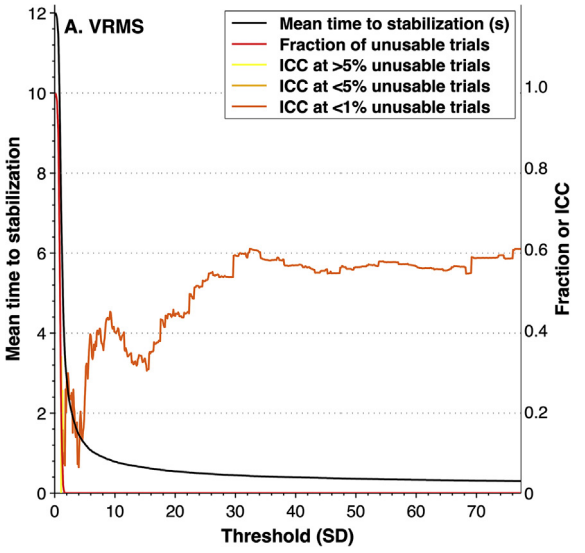
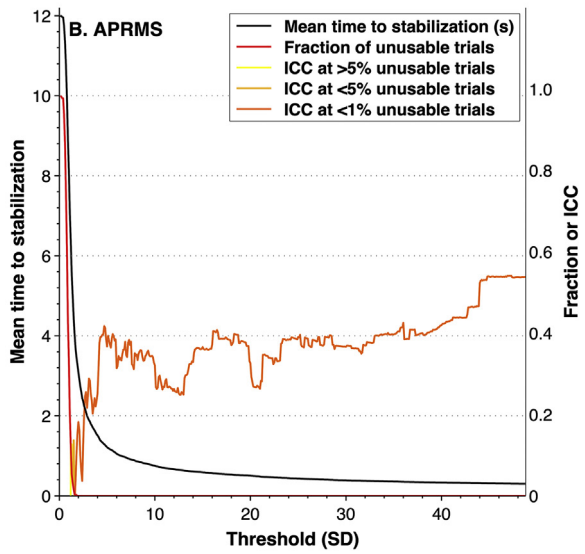


Fig. 3. The mean time to stabilization (TTS), the fraction of unusable trials, and the intra class correlation (ICC) with regard to the RAW signals (A. Vertical, B. Anteroposterior, and C. Mediolateral). Note that the threshold magnitude along the x-axis differs per panel.





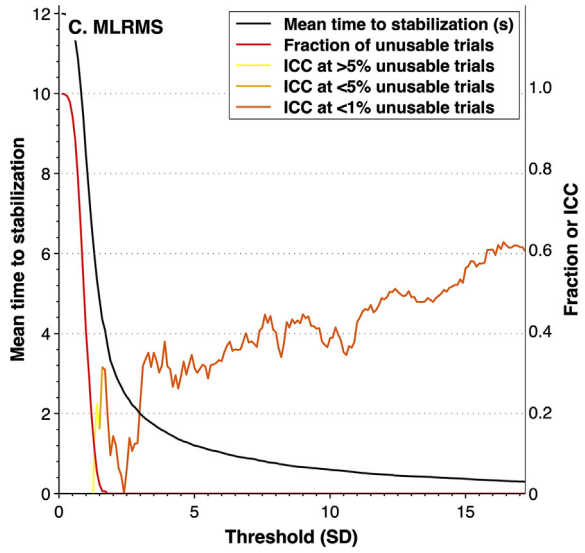
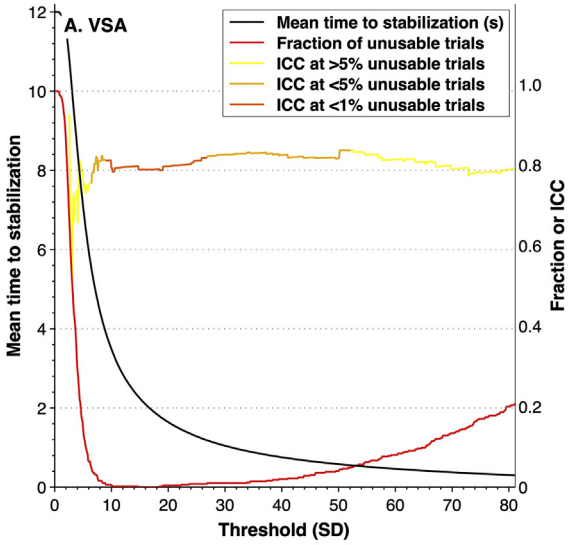
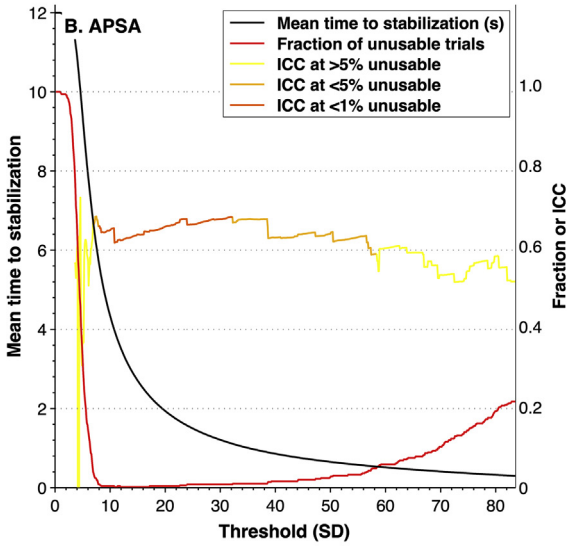


Fig. 4. Mean TTS, fraction of unusable trials, and ICC values with regard to the RMS signals (A. Vertical, B. Anteroposterior, and C. Mediolateral). Threshold magnitude along the x-axis differs per panel.





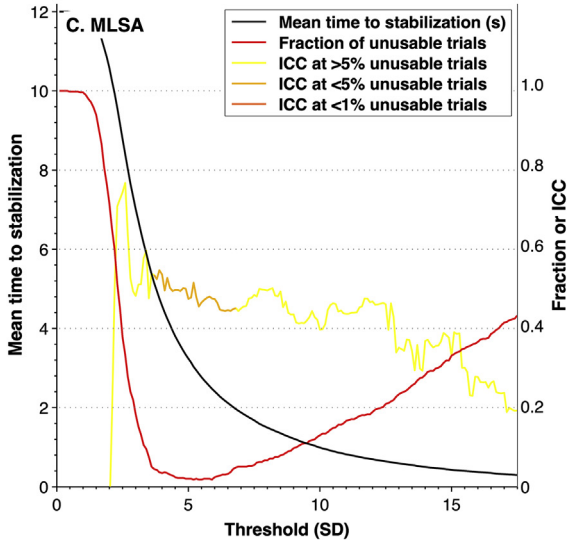
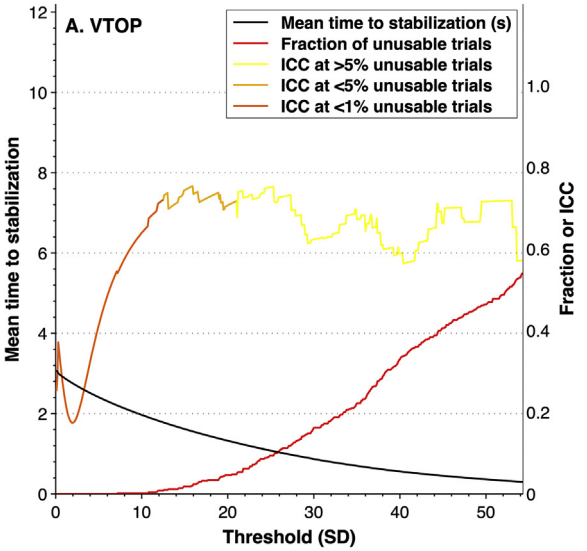
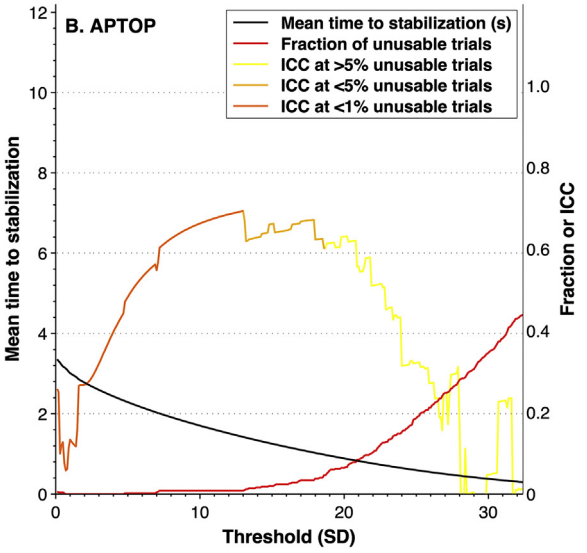


Fig. 5. Mean TTS, fraction of unusable trials, and ICC values with regard to the SA signals (A. Vertical, B. Anteroposterior, and C. Mediolateral). Threshold magnitude along the x-axis differs per panel.





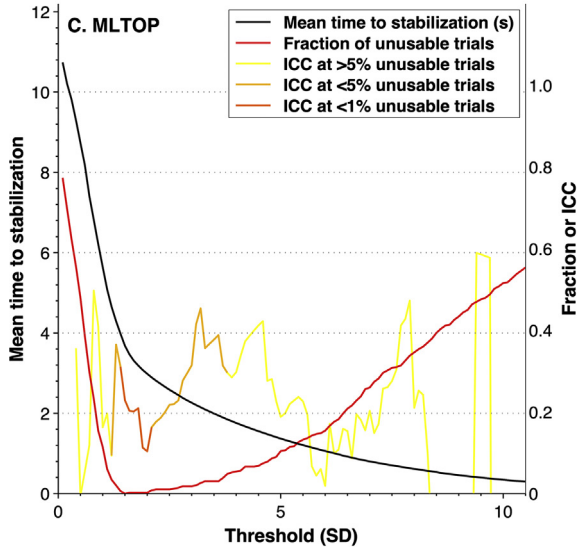


Fig. 6. Mean TTS, fraction of unusable trials, and ICC values with regard to the TOP signals (A. Vertical, B. Anteroposterior, and C. Mediolateral). Threshold magnitude along the x-axis differs per panel.

In contrast, the VSA, APSA, VTOP, and APTOP methods yielded sufficiently reliable TTS values, provided that thresholds were set within an appropriate range.

Reference

Fransz, D.P., Huurnink, A., de Boode, V.A., Kingma, I., van Dieën, J.H., 2016. The effect of the stability threshold on time to stabilization and its reliability following a single leg drop jump landing. J. Biomech. 49, 496–501.